

Particulate Matter Regulations Presentation

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Why Am I Here?

No, this is not philosophy...

Today's topics relate to Particulate Matter or PM

The topics I'm discussing are:

- **NSPS Subpart OOO (CFR §60.670) -
Nonmetallic Mineral Processing Equipment
or Rock Crushers and**
- **Permitting changes for Concrete Batch Plants**



Particulate Matter

- PM represents a broad class of chemically and physically diverse substances.
- Particles that are less than 2.5 micrometers in diameter are known as "fine" particles; those larger than 2.5 micrometers, but less than 10 micrometers, are known as "coarse" particles.
- Fine particles can remain suspended in the air and travel long distances. For example, a puff of exhaust from a diesel truck in Los Angeles can end up over the Grand Canyon (approx. 450 miles).



How Big is PM?

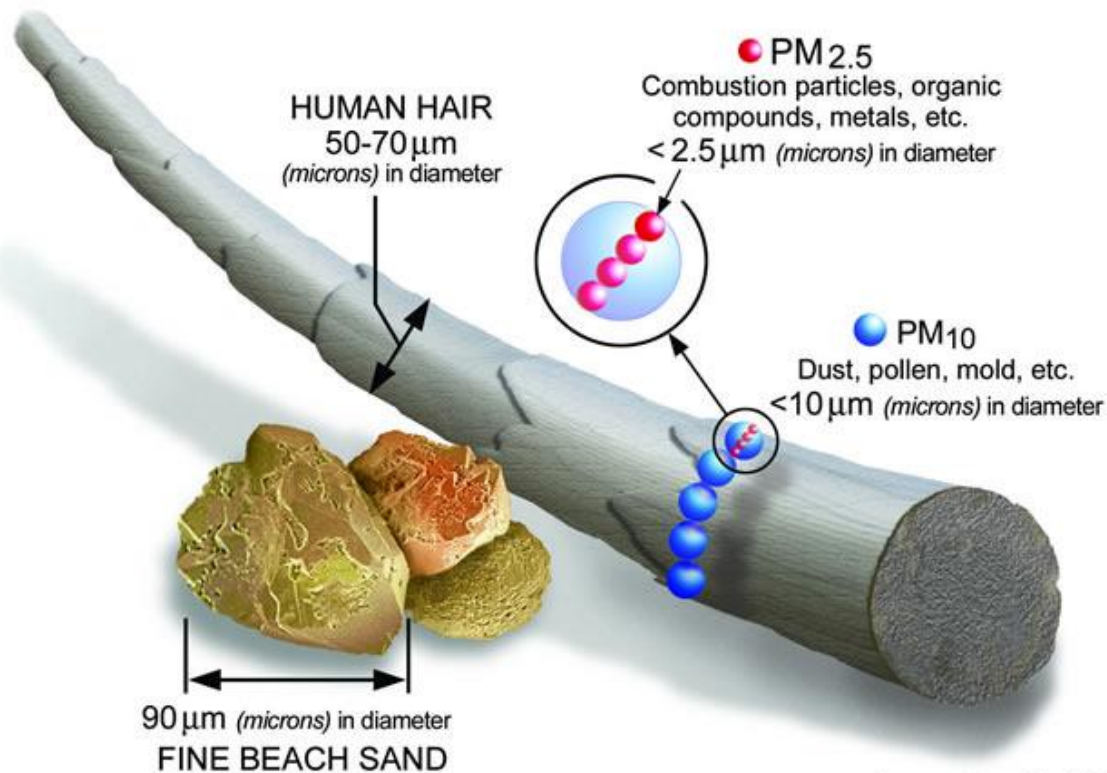


Image courtesy of the U.S. EPA



Where is the Emission?



Source: <http://www.sanbaocrushers.com/rock-crusher-plant-104.html>



NSPS Subpart 000

- For today's presentation, we will only be discussing equipment that uses wet suppression as a PM control method. The rule has additional requirements if baghouses, wet scrubbers or other control equipment is used.
- This rule does not apply to equipment that processes wet material as defined by the rule.
- Under MCAPCO, portable mineral processing equipment will need to be permitted if they are subject to NSPS Subpart 000.



NSPS Subpart 000

- Applies to non-metallic mineral processing equipment (crushers, screens and conveyors) that commenced construction, modification, or reconstruction after August 31, 1983.
- There are two sets of standards based on the manufacturing date of the equipment.



NSPS Subpart 000

(Older Equipment)

- For equipment manufactured after August 31, 1983 but prior to April 22, 2008:
 - Emission limits are 15% opacity for crushers that do not use a capture system
 - 10% for everything else
 - Capture system does not include wet suppression
- An initial performance test is required for all subject equipment.



NSPS Subpart 000

(Newer Equipment)

- The second standard for emissions apply when equipment commences construction, modification, or reconstruction after April 22, 2008:
 - Emission limits are 12% opacity for crushers that do not use a capture system
 - 7% for everything else
 - Capture system does not include wet suppression
- An initial performance test is required for all subject equipment.



NSPS Subpart 000

(Newer Equipment)

- Also required is testing, monitoring and record keeping
 - Performance testing to be within 60 days of achieving maximum production, but no later than 180 days from startup.
 - Performance tests consist of visible emission observations.
 - Monitoring includes monthly inspections of wet suppression to control dust emissions. Sprayers must be identified during initial performance test.



NSPS Subpart 000

(Newer Equipment)

- Recordkeeping must be performed and includes recording operation of dust control devices and any maintenance performed.
- Maintenance must be initiated within 24 hours of discovery of the problem.
- If records are not kept sufficiently, facility is in violation and repeat performance testing is required within 5 years of previous performance test.



NSPS Subpart 000

- A template log sheet is available upon request.

<i>NSPS Subpart 000 Records</i>		Facility/Location/Plant _____											
<i>For Calendar Year = 20____</i>		<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JUL</i>	<i>AUG</i>	<i>SEP</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<i>Inspection Date =></i>													
<i>Initials of Person Performing Inspection =></i>													
1. Is water properly flowing to each discharge spray nozzle in the wet suppression system?													
<i>a</i>	<i>Yes or no?</i>												
2. If water was not properly flowing to each discharge spray nozzle in the wet suppression system, what corrective actions were taken to repair the equipment?													
<i>a.</i>	<u>Notes and Dates of Repairs</u>												
<i>(indicate the piece of equipment that was malfunctioning, what corrective actions were taken, and what date the actions were taken)</i>													



Concrete Permit Changes



Concrete plant - Mladenovac, Belgrade, Serbia

Source: <http://www.simi.rs>



Concrete Plant Permitting Changes

- EPA has determined that control devices on storage silos are inherent to the process which impacts Title V applicability.
- Cement silo and supplement silo CONTROLLED potential emissions are used to determine if a facility will be required to have a Title V permit.
- Title V applicability is based on PM-10 not total PM.



Concrete Plant Permitting Process

- Only 2 emission point sources are considered, cement and supplement silos. The remaining sources of PM emission are considered fugitive, which means they are not considered in Title V applicability.
- Based on control device emission factors, concrete plants with a capacity less than 63,000 yd³/hr will be considered a true minor source.



Concrete Plant Permitting Changes

- Local permitting applicability is based on point source emissions before controls. This determines facility classification.
- New classification is based on PM potential emissions, less than 25 tons/yr is a C source, greater than 25 tons/yr is a B source.
- If new before controls potentials are calculated to be less than 5 tons per year, the facility will become a registered facility.



Concrete Plant Calculation Changes

This is a section of the output screen that depicts the changes. The green highlighted cell indicate the PM emissions that are regulated.

PARTICULATE MATTER EMISSIONS INFORMATION							
PARTICULATE EMISSIONS		ACTUAL EMISSIONS		POTENTIAL EMISSIONS			
		(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)	
	Pollutant	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
truck mix*	PM	0.000	0.000	0.000	0.000	0.000	0.000
	PM10	0.000	0.000	0.000	0.000	0.000	0.000
central mix*	PM	0.562	0.000	18.100	79.276	0.562	2.461
	PM10	0.153	0.000	4.797	21.009	0.153	0.670
cement silo	PM	0.020	0.000	14.965	65.547	0.020	0.089
	PM10	0.007	0.000	9.635	42.201	0.007	0.031
suppl. Silo	PM	0.053	0.000	18.840	82.519	0.053	0.234
	PM10	0.029	0.000	6.600	28.908	0.029	0.129
weigh hopper** [sand & aggr.]	PM	0.798	0.000	0.798	3.497	0.798	3.497
	PM10	0.466	0.000	0.466	2.040	0.466	2.040
sand & aggr.	PM	2.404	0.000	2.404	10.532	2.404	10.532
	PM10	1.147	0.000	1.147	5.023	1.147	5.023
TOTAL PM	PM	3.838	0.000	55.107	241.371	3.838	16.812
TOTAL PM10	PM10	1.802	0.000	22.644	99.181	1.802	7.892
TOTAL PM (cement & suppl silos)	PM	0.074	0.000	33.805	148.066	0.074	0.323
TOTAL PM10 (cement & suppl silos)	PM10	0.036	0.000	16.235	71.109	0.036	0.159
Title V Potential	PM10						0.159

*Truck/Central mix emission factors include emissions from cement & supplement weigh hopper(s).

**Actual/Potential weigh hopper (sand & aggr) emissions assumed uncontrolled since AP-42 reports "no data" for controlled.



Concrete Plant Permitting Process

- Concrete plants that are synthetic minor and wish to change their source classification will be required to modify their permit. The process will be to submit a letter requesting the change, an emission spreadsheet and an appropriate application fee.
- A revised calculation spreadsheet is available on our website. Any old spreadsheets will need to be discarded.



Questions?





Particulate Matter

Fast Facts:

- Particles that are less than 2.5 micrometers in diameter are known as "fine" particles; those larger than 2.5 micrometers, but less than 10 micrometers, are known as "coarse" particles.
- Fine particles are easily inhaled deep into the lungs where they may accumulate, react, be cleared or absorbed.
- Scientific studies have linked particle pollution, especially fine particles, with a series of significant health problems, including:
 - premature death in people with heart or lung disease,
 - nonfatal heart attacks,
 - irregular heartbeat,
 - aggravated asthma,
 - decreased lung function, and
 - increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.
- Particle pollution can cause coughing, wheezing, and decreased lung function even in otherwise healthy children and adults.
- Studies estimate that thousands of elderly people die prematurely each year from exposure to fine particles.
- The average adult breathes 3,000 gallons of air per day.
- Fine particles can remain suspended in the air and travel long distances. For example, a puff of exhaust from a diesel truck in Los Angeles can end up over the Grand Canyon (approx. 450 miles).
- Particle pollution, unlike ozone, can occur year-round.
- People can reduce their exposure to air pollution by checking their daily air quality forecast and adjusting strenuous outdoor activities when an unhealthy AQI is forecast.

Source: EPA website